SEQUENCE LISTING

<110> ADAM, GAIL I.
LANGDOWN, MARIA L.

<120> DIAGNOSING PREDISPOSITION TO FAT DEPOSITION AND ASSOCIATED CONDITIONS

<130> SEQ-4031-UT

<140> 10/608,296
<141> 2003-06-27

<150> 60/392,361
<151> 2002-06-27

<160> 80

<170> PatentIn Ver. 3.2

<210> 1
<211> 12174
<212> DNA
<213> Homo sapiens

<400> 1
gacctacctc gacctttgtg ccaggttctt agcatatggg acctgggatg gagttagcgc 60
tcagttaata gtaactcatt agccaggtgc ggtggctcat gtctgtattc ccagcacttt 120
gggagaccga gttgggtgga tcacttgaga gcaggagttt gagaccagcc tggccaacat 180
ggcaaaacac tatctctaat aaaaatacaa aaattagcca ggtgtggtgg cacttgccta 240
tagtcccagc tacacaggag gctggggcag aagaatcact tgaacctggg aggtggaggt 300
tgcagtgagc caagattgca ccactgcact ccagcctgga aaaaaagggt aattaataac 360
tttacttgca accatagctg cttctccttc tttgagccac ccccaatcac ccacttagca 420
tccttcaggc ctaaayctag gagcagtgcc tggtcctctg tcttgttatg accccaagga 480
acccacataa gagggactga acattttgct gggcaaggct tccctttgct tgggcagact 540
ccactcattc tggggctgca gaggcaggac cattcagtca agctgatgtg ggattctgac 600
ctaaccaagt ccccctccat tagtcctcat agcccccacc tcccatgggg cagccctgag 660
acaggctctg tgacaatcca cagcagccct gtccaacaga accttctgtg atcatggaaa 720
cattctgtgg ctgccaatct ggcagccact cgccacatgt gtctatgagc cttgaaatgt 780
ggccattgtg actgagaaac tgaactttta atggtatttc atttttattt ttatttttt 840
tttatttatt ttgaggcaga gtctcactct gtcacccggg ctggagtgca gtggcactcg 900
gctcactgca agctccgcct cccgggttca cgccattctc ctgcctcagc ctcgggagta 960
cctgggacaa caggcacccg ccaccacgcc cggctaattt tttgtatttt tagtagagat 1020
ggggtttcac catggtctcg atctcctgac ctcaggtgat ccacccgctt cggcctcccg 1080
aagtgctggg actgcaggca tgagccacca cgcccggccc agaaaagaga tgattaaaca 1140
taaagcagcc atgtgatgaa atggcacttt gcctctgtgg tcttcctccc ccaaacccat 1200
aactgtaatc taattatgag aaaaacacag gacaattcca atagagagcc aggtgcagtg 1260
gttcacgcct gtaatcccag cactttggga ggctgaggcg ggcagatcat gaggtcaaga 1320
aatcaagacc atcctggcca acatggtgaa accccgtctc tactaaaaat acaaaaatta 1380
gctggacgca gtggtgtgca cctgtagtcc cagctactcg ggaggctgag gcaggagaat 1440
catttgaacc cgggaggcag aggttgcagt gagctgagat cgcgccactg cactccagcc 1500
tggtgacaga gtgagactcc gtctcaaaaa taaataaaaa taaataaata aaaattagct 1560
gggcgtggtg gcacgtgcct gtaatcccag ctactcagag gctgaggcac aagaatcact 1620
tgaacctggg agacagagat tgcagtgagc cgagattgtg ccactgcact ccagcctggg 1680
cgacagagtg agactacaac aaacacacac acacacaccc acacacacac acacacaaat 1740
tccaagagag ggtcatcctg accaatactc ctcaaaacta tcaaggttgc tgggcacagt 1800
ggctcacgcc tgtgatccca atgctttggg aggcttagat gggaggatca cttgaggcca 1860
ggagttcaag accagcctgg gcaacatagg gagacgccgt gtctccaaaa atttttttga 1920

gacagagtct cgctgtgtcg cccaggccgg agtacagtgg cgtgatctcg gctcactgca 1980
aactctgcct cctgggttca cgccattctt ctgcctcagc ctcccaagtt gctgagatta 2040
caggcacccg ccaccatgcc cagcttattt tttgtatctt tagtagagac aaggtttcac 2100
tgtgttagcc aggatggtct ccatcacctg acctcgtgat ccgcctgcct cggtctcccc 2160
aagtgctggg attacaggta tgagccaccg tgcctggccc aaaaaatttt tttaaattag 2220
ccaggtgtgg tgacacatgt ctgtagtccc cactaatcgg gaggctaagg tgggaggatt 2280
gcttgagccc aggaggttga ggctgcagtg aactatgatc gtgtcactgc acatcagtct 2340
gggaaacaga gcgacacttt gtctcaaaaa aaaaaaacag ataaataaat taaataacca 2400
ggccctcctt atcccacagg gttgttgtag aggtgacata ggaacagaag agcaccaagt 2460
taaccaatta taaatctata tagagagaag cagatcagag gccaggcaca gtggctcatg 2520
cctataatcc cagcattttg ggaggctgag gagtggatca cctgaggtca agagtttgag 2580
accagcctga ccaacatggt gaaaccttgt ctctactaaa aatacaaaaa ttatccaggc 2640
atgctggcag gcgcctgtaa ttcccagcta cacgagaggc tgaggcagga gaatcgcttg 2700
aacctgggag gcggaggttg cagtaagccg agatcgtgcc attgcactcc agcctgggcg 2760
acaagagcga aactctgtct caaaaaaaaa agagagagag agagagaagc agattagcag 2820
ttaccagggg ctgagggagt gtgactgcta atgggtacag ggtttccttc tggagtgata 2880
aaaatgttct ggaaccccat agaggtgatg gttgcacaac actgtgaagg tactaaatgc 2940
ccccgaattg tttacttaaa cgtggttaat gttatgtgaa tttcagctaa acaatgttat 3000
gtagatattt ggccgggcgc ggtggctcac gcctgtaatc ccagcatttt gggaggccga 3060
ggcaggtgga tcacgaggtc aggagatcga gaccatcctg gctaatgcgg tgaaacccca 3120
tctctactaa aaatacaaaa aaaaaaatta accgggcgtg gtggtgggtg cctgtagtcc 3180
cagctacttg ggaggctgag gcaggagaat ggcatgaacc tgggaggcag agcttgcagt 3240
gagccaagat cgcgccattg cactccagcc taggcaacag agcaagactc cgtctcaaaa 3300
aatatatata aataaataga tatgtgatgt gacaggtttt tttttgagat ggagttttgc 3360
tcttgttccc taggctggag tgcaatggcg tgatctcagc tcaccgcaac ctccgcctcc 3420
agggttcaag ccattctcct gcctcggcct ccggagtagc tgggattaca ggcataagcc 3480
accatgcctg gctaattttg tgtttttagt agagacaggg ttattccatg ttggtcaggc 3540
tggtctcgaa ctctccacct caggtgatct gccagcctca gcctcccaaa gtgctgggat 3600
tacaggcatg agccaccgtg cctggcctct gatatgacag ttctaatgcc ctttagtatt 3660
ctataattca gactcaggcc tttggaatcc aaagcccagg tttttctcac aaacccacac 3720
tgcagagcgg agtggtggaa aaaaataaaa cctctgcctt ggaatcagac agatctaaac 3780
tggagcccta ttttgtcatt tgccaactgt gtgaccttgg gcaagttacc gcaactctct 3840
gaacctgtct ctttatctgc aaggtgcacg actgatggga ctattcaacc agacccagtg 3900
cacagattca ggcacttgat aagacattga ggctgcaggc agcgatcttt tttctttctt 3960
tctttttttt ttttttttt tgaaataggg tctcactctg ctgcagaggc tcaatcactg 4020
ttcattgcag ccttgacctc cctggctcam gagatcctcc catctcagcc tcctgagttg 4080
ctgggatcac aggtgcaatc caccaccaca cctggttaac attttttttt ttagagatga 4140
ggtctctcta tgttgcccag gctgcacttc cttcttgtct cccttatccc agcgtccgac 4200
tgaactgacg gctttgcttt ccccaaccag cccgtgaagc tgggctgagt acaaagtggt 4260
gggtatgagg gtcaagattg taagatctga aaactccaga aaccatccct ttggttaaca 4320
gttgctaagg acaaatgcat aacatatttt ccagtgatcc catgctggca aatcgtcagg 4380
gtcattcctg caacagacag attcaaggcc agccccaaac tcagccaaga gcaaagcaaa 4440
cactccagcc ttatctgggc agggttgtgt ggagactgac tataagacta tacctgagac 4500
tggtcatctc agttcttttc tcaccttgac tgcaagatga aactccttgt gctagctgtg 4560
ctgctcacag gtaggcaagt ctccccggct ccacccgcct ttctctccca agtgagctaa 4620
gatctcactc ctctggaatg ggggccacag gccacagcaa acagggatgg ccagccccgc 4680
agtctcaawt cgaggttccc agtggggctt aagggctcct ctattggggt tccctcaagg 4740
ctggcacttt ttcaacctgc aagtctgaac tcagattgcc tgagctaaga aagcttgcct 4800
ttatttctt ttttccagac agggtcttgc tctatcaccc aggctggagt tcagtggcat 4860
gatcatagct caccacagct tccaactcgt gggctcaagt gatcctccca ccttactcaa 4920
ctaagtagtt aggccaatct cccatttatt ttattttatt ttaattttta tttttatttt 4980
actttatttt atttttgaga cggggctcac tctgtcgccc aggctggagt gcggtggcgt 5040
gatctcagat cactacaacc tccatctcct gggttcaaat aattctcttg cctcagcctc 5100
tcaagtagct gggacttgta gctctcaagt agctggcaca caccaccatg cccagctaat 5160
tttttgtgtg ttttttttgg tagagacagg ttttcaccat gttggccagg ctgggtgacc 5220
tccctttag attctcctca tcctgctcta ttcttccct ttctaatgca gtatccagtt 5280
tccttactta tcacatttat tattattctt attattattg agacagagtc ttgctttgtc 5340
gccaaggctg gagtacagtg gtgcgatctc ggctcactgc aagctccacc tgctgggttc 5400

acgccattct cccgcctcag cctccccagt agctgggact aaaggcgcct gccaccacgc 5460
cccgctaatt tttttgtatt tttaataaag acggggtttc atcgtgttag ccaggatggt 5520
ctcgatctca tgaccttgtg atccgcctgc ctcggcctcc caaagtgctg ggattacagg 5580
catgagccac cgtgcccggc cttatcacat ttattattta ttgtttttct ctcccactag 5640
gttgtaagct ccatgaggtt agagattatt attattatta ttattattat tattattatt 5700
attattatta tatctgttca ctgctgtatc tctagctcct aggacagagc ctggcacata 5760
gtaagtgctc aataaatatt cactggataa acagtgcaga tagtttaaaa ctatctgacc 5820
tagggaggct gaggcaggag aatggcgtga acccgggaag cagagtttgc agtgagctga 5880
aatcgtgtca ctgcactcca acctgggcaa cagagcaaga ctccatctca aaaaaaaaaa 5940
aaaaactatc aggcctagct gggtggcaca tgcctgtaat cctagctgag gcggtagggt 6000
cccagaagaa gaagaagaag aaaaagaaga agatatatat atatatacac acacacaaag 6060
atataaactt tatatatata aagttttcat taaaaaaaaa aaaaaacctc tacccacttt 6120
cactttacca ggttcctggg tccaacggtc ttcagaggag gcagctggca ggggtcaggg 6180
aggcagcgtg ggacccgagg gagcaggaag gcagtgtgtc cccggggtgc tggcagaccg 6240
atttgaactc tggctatgtc ttcttgcagt ggccgccgcc gmcagcggca tcagccctcg 6300
ggccgtgtgg cagttccgca aaatgatcaa gtgcgtgatc ccggggagtg acccctttytt 6360
ggaatacaac aactacggct gctactgtgg cttggggggc tcaggcaccc ccgtggatga 6420
actggacaag taagtgatcc gcctgcagga aaattggagt gcctgccggg ggcggggtgg 6480
ggcacacgcc aaggatctca cgaggcatac aaaggggact tgcatatctg ctaaggataa 6540
catattttca cctcttgtca aataaacaaa tatgttccaa gaggaccctg tagcgaacgc 6600
accccgttag agatggaaac aatgaccgac gtgcaaaaca gtgggcgatg ctgccctcca 6660
gtggcagaat gtagcaacag taaacatcac agcaactatc cacgtgtcat tttctagcag 6720
tggttgtcac tgcaccttct gaatacagga ttttactgta ttcttgcaac catgttaaaa 6780
atcgctttca ggccaggcgc ggtggctcat gcctgtaatc ccagcacttt gggaggccga 6840
ggcgggcgga tcacttgagg tcaggagttc gagaccagcc tggccaacat ggtgaaaccc 6900
tgtctctact aaaaaataca aaaattagcc ggacatggtg gcgagcgcct gtaaccccag 6960
ctacttggga gactgagttg gaggtttcag tgagccaagg tcgtgtcact gctgtccagc 7020
ctgggtaaca gagcaactct gtctcaaaaa aaaaaaatgc tttcaataaa tatatgataa 7080
aaggacttat atttttttcaa gccataggat catttctcct gaagcatctt ggcgaagtca 7140
tccccacctg ttcctgagag tgggcaggtg agggctgacc tattgctctg cacttactcc 7200
tatctcagct gtccctccca ctttccaggt gctgccagac acatgacaac tgctaygacc 7260
aggccaagaa gctggacagc tgtaaatttc tgctggacam mccgtacacc cacacctatt 7320
catactcrtg ctctggctcg gcaatcacct gtagcagtag gtttatccct tccttgacct 7380
atgaattcta gttggttctc agtaggccgg ggggaaataa tagtaacaac agccatgatt 7440
tagtgttaat tttcttggtt ctgggcagtg tctcctttaa tcctcagaac aacactatgg 7500
gataggtaca attatcctca cttaacagat aagaaaactg aggctcagaa ggctgagcta 7560
tttgcccaag atcacacagc ttgtaagtgg tgacagtttg ggtttttttt tgttgttgtt 7620
tagagacagg gtcttgctct gtcacccagg catgagcaca gtggtgcaac cataggtcac 7680
tgcagcctca acctcctgag ctcaagggat ctgctgacct cagcctccca agtagctggg 7740
actacgagcg tgcaccacca cgcctggcta attaaaaaaa ttttttttgta gagactgggt 7800
cttactacgt tggccaggct tgtcttaaac tcctggcttc aagcaatcct cctaccttgg 7860
catcccaaag tgctgggatt acaggggtga gccaccatgt gcggctactt atttctttac 7920
attccatctt tccaatagaa tgtaagatcc acagaacagg gattactgcc tattttcttc 7980
ctttctttttt tgagacagag tctcacttca tcacctcaac ctccgttcag ctcactgcaa 8040
cctctgcctc ccgggttcaa gygattctcc tgcctaagcc tcctgagtag ctggaattac 8100
aagcgtgcac caccatgctt ggctaatttt ttgtattttt agcagagatg gggttttacc 8160
atgttgccca ggctggtctc aaactcctga cctcaagtga tctgcctgcc tcagtctccc 8220
aaagtgctgg aattataggc gtgagtcact gtgcctggcc gattactgtc tattttcttt 8280
attgctatat ccccagatct agagcagtgt ctgacatata gtaggtgctc aataaataat 8340
tgatgaatgc acagcctaga tataaacttt ctttttcttt ttttaaaaca atcttgacaa 8400
ctttgcagaa taaatacaat cttgcattct gctttttcac ttatcacctt gttatgactt 8460
tttcatattg cctcaaacct ttattgttac tgtttttttca ttgttactat tttagtcact 8520
gaataatatg gcttaatttg cttatacatc ctcctgctcc actttagaag gccaaattta 8580
caaatctgat gaaagctatg aaccctctcc ccagagaaat acacacacac acacacactc 8640
acacacagtt ttttttaat gtttgcaact aagacaagaa acctgcatta gaggatgttt 8700
gttcatatta attaaaaata actcagttgg gcacagtgac tcaagcctgt aaccacagta 8760
ctttggaagt ccaaggtggg tggatcactt gaggtgagaa gttcgagacc agcctggtca 8820
atatggtgaa accctatctc tactaaaaat acaaaaatta gctgggtgta gtgatgcatg 8880

cctgtagtcc cagctactcg ggaggctgag gcaagagaat tgcttgaacc tgggaggcag 8940
aggttgcagt gagccgagat cccaccactg cactccagcc tgggcgacac agcgagactc 9000
tatctcaaaa aaataaataa ataaaataaa ggatcggaga gaaacaaaac taataagatt 9060
cctgaaggta agcagagata cgtaaattat atgtaataaa gtttaaatgc attttaactg 9120
taatcttatt gtttattttg gttataaaag taaacaagcc aaaagtaatg caacttcaaa 9180
ckctacataa atatctatta tggaaagtgg aaggcatcta taatcctact acccaaagat 9240
aaccagttac atattcctcc agatttttgg ggcatacact agctttttt atttgggaaa 9300
atttccatgt gcaggcatac ctaatttttc taaatgtcta tgtagtattc catttaagga 9360
tgttccataa tttttaaaat acatgcttta aagtagagaa actaggttgg gcatggtggc 9420
tcacgcctgt atcccagcac tttgggaggc cgaggcaaat ggatcacttg aggtccggag 9480
tttgagacca gcctggacaa catgatgaaa caccctctct aataaaaata caaaaattag 9540
ctgggcatgg tggcaagcac ctgtagtccc agctactcag gagtctgagg caggagtatc 9600
acttgaactc aggaggcaga agttgcagtg agctgagatc acgccactgc actccagcct 9660
aggcgacaaa agggaaactc cgtcttaaaa acaaaacaaa acaaaaaaac acaggatgcc 9720
cagataaata tgactttcag ataagcaatg gataattttt tgggggtat atgtcccaaa 9780
tattgcattc attgtttatc tgaaagtcaa atttaactgg gcatcctgat gtacttgtat 9840
tcacttaatc tgtcagccct aaatgtgcat cagtggaatg gctgccagct tattccagtt 9900
aattcttctt gccccagatt gtacaaaaca gggtccacct tggctcagtc ctctcctttc 9960
atccctctcc aggcaaaaac aaagagtgtg aggccttcat ttgcaactgc gaccgcaacg 10020
ctgccatctg cttttcaaaa gctccatata acaaggcaca caagaacctg gacaccaaga 10080
agtattgtca gagttgaata tcacctctca aaagcatcac ctctatctgc ctcatctcac 10140
actgtactct ccaataaagc accttgttga aagacctcat gtttggatat tgttttattc 10200
tctgtctata aactaggtct ctgcctactc ttttatttt atgtatttat tttttctagg 10260
tggagtcttg ctctgtggcc caggctggag tgcagtgatg ccaccttgcc tcactgcaac 10320
ctccgcctcc cgggctcaag caatcctccc gcctcatcct cccgagtagc tgggaccata 10380
ggcatgcacc accatgcctg gctaattttt gtatttttg tagagacaga gtttcgccat 10440
gttgccctgg ctggtctcaa actcctcagc ttaagtgatc tgcctggctc ggcctcgcaa 10500
agtgttggga ttacatgcat gagccgccgc gcctggctac tctgcctagt cttttgtgag 10560
tatcatttct tccagccttg gaagctaagt tgaattagaa agacacttcc aggaagcaag 10620
caagcacctt gaaacctgag taatgattaa cgatcaccat ctactgatta tttactctgt 10680
accaggactg tgtgtccata aatcctcttg acagccctgt gaggtattgg cgctattagc 10740
aaatcttatt ttcctaagct gaggctcaat aggagaggtc acttttccaa tgctatcatc 10800
tagtaagcag cagagaagga atttgaactc ggcaagtcta acaacagaaa acacatgctg 10860
aaccactgcc cttccctgcc tgaagtggta ggctttagtt tgagccagac cttgcccccg 10920
tctcatgatt ctgcctccat tttcaactgt attaaaccat ttttctacaa tgactttctt 10980
ttttttttt ttttttgaga tggagtctcg ctctgtcgcc caggctggag tgcagtgctg 11040
caatctcggc tcactgcaag ctctgcctcc caggttcacg ccattctcct gcctcagctt 11100
cccgagtagc tgggtttaca ggctcctgcc accacgccca gctaattttt tgtattttca 11160
gtagagacgg ggtttcaccg tgttagccag gatggtctcg atctcctgac ctcgtgatcc 11220
gcccgcctcg gcctcccaaa gtgctgggat tacaggcgtg agccaccgca cacggccacg 11280
actttctttt ctaaataaaa gacttcacca cactctacag gctaattttg acactgtagt 11340
catgaaatat aataaacatt aacaagccga gcatggcggc acgcgcctat gatcgtagct 11400
actcaagagg ctgaggcagg aggatctctt gatcccggga gtttgaggct gcagtgagct 11460
atgatcacac cactgcactc cagcctgggt gaaagagtga gaccctgttt caagctacta 11520
gggaggctga agtggaagga tcccctgagc ccaggagttg gaggctgcag tgagctgtga 11580
tcacgccact gcactccagc ctgagtgaca gagagagaca ctatctcaaa caaacacaca 11640
cacaaaacmc aaacaaaaca aaacaaaaca aaacaaaaca aaacaaaaaa ccaataacag 11700
cttgcatttc tggagcactt actgcatact tccttgttcg gagttttcca catctcatct 11760
cattaaatgt tcaaaccagc tctgtgatat tgatattttt gctcccattt catggatgtg 11820
gaactaaaaa ttcagagaag ttaagtcatt tgtccaagat cacacaaatg gcaaaatcag 11880
gatttggcca ggtctgtctg gtggcagtgc ccaagctttt aaccactaag tcacttcagc 11940
ccaattcctc tatgagtatt tatgactaca tttacattga aattcaccag aactaagcca 12000
gggacagtgg ctcacgcctg taatcccagg actttgagaa gtctaggtgg gcagatcact 12060
tgaggccagg agtttgagac cagcctggcc aacatggcaa aaccctgtct ctactaaaaa 12120
atacaaaaat tagccgagta tggtggcata ggcctgtaat cccaactact cagg 12174

<210> 2
<211> 148
<212> PRT
<213> Homo sapiens

<400> 2
Met Lys Leu Leu Val Leu Ala Val Leu Leu Thr Val Ala Ala Ala Asp
1 5 10 15

Ser Gly Ile Ser Pro Arg Ala Val Trp Gln Phe Arg Lys Met Ile Lys
20 25 30

Cys Val Ile Pro Gly Ser Asp Pro Phe Leu Glu Tyr Asn Asn Tyr Gly
35 40 45

Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Glu Leu Asp
50 55 60

Lys Cys Cys Gln Thr His Asp Asn Cys Tyr Asp Gln Ala Lys Lys Leu
65 70 75 80

Asp Ser Cys Lys Phe Leu Leu Asp Asn Pro Tyr Thr His Thr Tyr Ser
85 90 95

Tyr Ser Cys Ser Gly Ser Ala Ile Thr Cys Ser Ser Lys Asn Lys Glu
100 105 110

Cys Glu Ala Phe Ile Cys Asn Cys Asp Arg Asn Ala Ala Ile Cys Phe
115 120 125

Ser Lys Ala Pro Tyr Asn Lys Ala His Lys Asn Leu Asp Thr Lys Lys
130 135 140

Tyr Cys Gln Ser
145

<210> 3
<211> 562
<212> DNA
<213> Homo sapiens

<400> 3
tggtcatctc agtttctttt ctcaccttga ctgcaagatg aaactccttg tgctagctgt 60
gctgctcaca gtggccgccg ccgacagcgg catcagccct cgggccgtgt ggcagttccg 120
caaaatgatc aagtgcgtga tcccggggag tgaccccttc ttggaataca acaactacgg 180
ctgctactgt ggcttggggg gctcaggcac ccccgtggat gaactggaca agtgctgcca 240
gacacatgac aactgctatg accaggccaa gaagctggac agctgtaaat ttctgctgga 300
caacccgtac acccacacct attcatactc gtgctctggc tcggcaatca cctgtagcag 360
caaaaacaaa gagtgtgagg ccttcatttg caactgcgac cgcaacgctg ccatctgctt 420
ttcaaaagct ccatataaca aggcacacaa gaacctggac accaagaagt attgtcagag 480
ttgaatatca cctctcaaaa gcatcacctc tatctgcctc atctcacact gtactctcca 540
ataaagcacc ttgttgaaag aa 562

<210> 4
<211> 552

<212> DNA
<213> Mus musculus

<400> 4
ctcccctcac tccttctgaa gatgaaactc cttctgctgg ctgctctgct cacagcaggc 60
gctgctgcac acagcatcag ccctcgggct gtgtggcagt tccgcaatat gatcaagtgc 120
accatccccg ggagtgatcc cctgaaggat tacaacaact atggctgcta ctgtggcttg 180
ggcggctggg gcaccccagt ggacgactta gacaggtgct gccagactca tgaccactgc 240
tacagtcagg ccaagaagct ggaaagctgt aaattcctca tagacaaccc ctacaccaac 300
acttactcct actcatgctc cgggagcgag atcacctgca gcgccaaaaa caacaaatgc 360
gaggacttca tctgcaactg tgaccgtgag gccgccatct gcttctccaa ggtcccgtac 420
aacaaggaat acaaaaacct tgacaccggg aaattctgtt agcctgtcac ctcacttcct 480
gcccacgccg accccgccca ccttgctgtc ttatttcacc ctgcgccctc taataaagta 540
cctgctgtca ga 552

<210> 5
<211> 542
<212> DNA
<213> Rattus norvegicus

<400> 5
ccctcgccaa gatgaaactc cttctgctgg ctgctttgct cacagcaggc gttactgcac 60
acagcatcag cactcgggct gtgtggcagt tccgcaatat gatcaagtgc accatccccg 120
ggagtgatcc cctgagggag tacaacaact acggctgcta ctgtggcttg ggcggctcag 180
gcaccccagt ggacgactta gacaggtgct gccagactca tgaccactgc tacaatcagg 240
ccaagaagct ggaaagctgt aaattcctca tcgacaaccc ctacaccaac acgtactcat 300
acaagtgctc cgggaacgtg atcacctgca gcgacaaaaa caacgactgt gagagcttca 360
tctgcaactg tgaccggcag gccgccatct gtttctccaa ggtcccctac aacaaggaat 420
acaaagacct tgacaccaag aaacactgtt aggctgtcac cccacttcct gtctatgccg 480
tccccgctcc ccttgctgtc ttatttctgc accgcaccct ctaataaagt accagcagaa 540
ag 542

<210> 6
<211> 289
<212> DNA
<213> Psammomys obesus

<220>
<221> modified base
<222> (269)
<223> G, C, A, or T

<400> 6
tgttccgcaa tatgatcaag tgcgccatcc ccggaagtaa gcccctgaag gagtacaaca 60
actacggctg ctactgcggc ctgggcggcg caggcacccc agtggacgaa ttagacaggt 120
gctgccagat ccatgacaat tgctacacta aggccaagag gctgaaaagc tgtaaatccc 180
tcctggacaa cccctacacc cactcatact cgtacaagtg ctccgggaat gagatcatct 240
gtagtgacaa aaacaaggaa tgcgaggcnt tcatctgcaa ctgtgaccg 289

<210> 7
<211> 148
<212> PRT
<213> Homo sapiens

<400> 7
Met Lys Leu Leu Val Leu Ala Val Leu Leu Thr Val Ala Ala Ala Asp
1 5 10 15

Ser Gly Ile Ser Pro Arg Ala Val Trp Gln Phe Arg Lys Met Ile Lys
20 25 30

Cys Val Ile Pro Gly Ser Asp Pro Phe Leu Glu Tyr Asn Asn Tyr Gly
35 40 45

Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Glu Leu Asp
50 55 60

Lys Cys Cys Gln Thr His Asp Asn Cys Tyr Asp Gln Ala Lys Lys Leu
65 70 75 80

Asp Ser Cys Lys Phe Leu Leu Asp Asn Pro Tyr Thr His Thr Tyr Ser
85 90 95

Tyr Ser Cys Ser Gly Ser Ala Ile Thr Cys Ser Ser Lys Asn Lys Glu
100 105 110

Cys Glu Ala Phe Ile Cys Asn Cys Asp Arg Asn Ala Ala Ile Cys Phe
115 120 125

Ser Lys Ala Pro Tyr Asn Lys Ala His Lys Asn Leu Asp Thr Lys Lys
130 135 140

Tyr Cys Gln Ser
145

<210> 8
<211> 146
<212> PRT
<213> Mus musculus

<400> 8
Met Lys Leu Leu Leu Leu Ala Ala Leu Leu Thr Ala Gly Ala Ala Ala
1 5 10 15

His Ser Ile Ser Pro Arg Ala Val Trp Gln Phe Arg Asn Met Ile Lys
20 25 30

Cys Thr Ile Pro Gly Ser Asp Pro Leu Lys Asp Tyr Asn Asn Tyr Gly
35 40 45

Cys Tyr Cys Gly Leu Gly Gly Trp Gly Thr Pro Val Asp Asp Leu Asp
50 55 60

Arg Cys Cys Gln Thr His Asp His Cys Tyr Ser Gln Ala Lys Lys Leu
65 70 75 80

Glu Ser Cys Lys Phe Leu Ile Asp Asn Pro Tyr Thr Asn Thr Tyr Ser
85 90 95

Tyr Ser Cys Ser Gly Ser Glu Ile Thr Cys Ser Ala Lys Asn Asn Lys
100 105 110

Cys Glu Asp Phe Ile Cys Asn Cys Asp Arg Glu Ala Ala Ile Cys Phe
115 120 125

Ser Lys Val Pro Tyr Asn Lys Glu Tyr Lys Asn Leu Asp Thr Gly Lys
130 135 140

Phe Cys
145

<210> 9
<211> 146
<212> PRT
<213> Rattus norvegicus

<400> 9
Met Lys Leu Leu Leu Leu Ala Ala Leu Leu Thr Ala Gly Val Thr Ala
1 5 10 15

His Ser Ile Ser Thr Arg Ala Val Trp Gln Phe Arg Asn Met Ile Lys
20 25 30

Cys Thr Ile Pro Gly Ser Asp Pro Leu Arg Glu Tyr Asn Asn Tyr Gly
35 40 45

Cys Tyr Cys Gly Leu Gly Gly Ser Gly Thr Pro Val Asp Asp Leu Asp
50 55 60

Arg Cys Cys Gln Thr His Asp His Cys Tyr Asn Gln Ala Lys Lys Leu
65 70 75 80

Glu Ser Cys Lys Phe Leu Ile Asp Asn Pro Tyr Thr Asn Thr Tyr Ser
85 90 95

Tyr Lys Cys Ser Gly Asn Val Ile Thr Cys Ser Asp Lys Asn Asn Asp
100 105 110

Cys Glu Ser Phe Ile Cys Asn Cys Asp Arg Gln Ala Ala Ile Cys Phe
115 120 125

Ser Lys Val Pro Tyr Asn Lys Glu Tyr Lys Asp Leu Asp Thr Lys Lys
130 135 140

His Cys
145

<210> 10
<211> 146
<212> PRT
<213> Psammomys obesus

<400> 10
Met Lys Leu Leu Leu Leu Ala Ala Leu Leu Thr Ala Gly Val Gly Ala
1 5 10 15

His Ser Ile Ser Thr Arg Ala Val Trp Gln Phe Gly Asn Met Ile Lys
20 25 30

Cys Ala Ile Pro Gly Ser Lys Pro Leu Lys Glu Tyr Asn Asn Tyr Gly
35 40 45

Cys Tyr Cys Gly Leu Gly Gly Ala Gly Thr Pro Val Asp Glu Leu Asp
50 55 60

Arg Cys Cys Gln Ile His Asp Asn Cys Tyr Thr Lys Ala Lys Arg Leu
65 70 75 80

Lys Ser Cys Lys Ser Leu Leu Asp Asn Pro Tyr Thr His Ser Tyr Ser
85 90 95

Tyr Lys Cys Ser Gly Asn Glu Ile Ile Cys Ser Asp Lys Asn Lys Glu
100 105 110

Cys Glu Ala Phe Ile Cys Asn Cys Asp Arg Ala Ala Ala Ile Cys Phe
115 120 125

Ser Lys Ala Pro Tyr Asn Lys Gln Asp Lys Asn Leu Asn Thr Lys Lys
130 135 140

Asn Cys
145

<210> 11
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 11
tgcagaggct caatcactgt 20

<210> 12
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 12
caggtgtggt ggtggattg 19

<210> 13
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 13
cacaggccac agcaaacag 19

<210> 14
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 14
tcagacttgc aggttgaaaa ag 22

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 15
ggcagaccga tttgaactct 20

<210> 16
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 16
cgggatcacg cacttga 17

<210> 17
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 17
ggcagttccg caaaatgat 19

<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 18
tgcaggcgga tcacttactt 20

<210> 19
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 19
agctgtccct cccactttc 19

<210> 20
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 20
gtgtgggtgt acgggttgt 19

<210> 21
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 21
agctgtccct cccactttc 19

<210> 22
<211> 22

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 22
ataggtcaag gaagggataa ac 22

<210> 23
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 23
agctgtccct cccactttc 19

<210> 24
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 24
ataggtcaag gaagggataa ac 22

<210> 25
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 25
caagaagctg gacagctgta 20

<210> 26
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 26
ataggtcaag gaagggataa ac 22

<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 27
atcacctcaa cctccgttca 20

<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 28
ggtggtgcac gcttgtaatt 20

<210> 29
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 29
aaggtaagca gagatacgta aattat 26

<210> 30
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 30
ggttatcttt gggtagtagg attata 26

<210> 31
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 31
tgagatggga ggatct 16

<210> 32
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 32
actgggaacc tcga 14

<210> 33
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 33
gctgatgccg ctg 13

<210> 34
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 34
ggagtgaccc ctt 13

<210> 35
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 35
acacatgaca actgcta 17

<210> 36
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 36
ggtgtgggtg tacgg 15

<210> 37
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 37
ggtgtgggtg tacgg 15

<210> 38
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 38
ccacacctat tcatactc 18

<210> 39
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 39
cttaggcagg agaatc 16

<210> 40
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 40
gtaatgcaac ttcaaac 17

<210> 41
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 41
acccacttag catccttcag 20

<210> 42
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 42
tcttatgtgg gttccttggg 20

<210> 43
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 43
tgtggccatt gtgactgaga 20

<210> 44
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 44
gcccgggtga cagagtg 17

<210> 45
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 45
tgtggcagtt ccgcaaaatg 20

<210> 46
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 46
agtagcagcc gtagttgttg 20

<210> 47
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 47
accccgttag agatggaaac 20

<210> 48
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 48
ctgttgctac attctgccac 20

<210> 49
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 49
aatttctgct ggacaacccg 20

<210> 50
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 50
cctactgcta caggtgattg 20

<210> 51
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 51
caagccaaaa gtaatgcaac 20

<210> 52
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 52
ggattataga tgccttccac 20

<210> 53
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 53
tcatctcaca ctgtactctc 20

<210> 54
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 54
caatatccaa acatgaggtc 20

<210> 55
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 55
gacagagaga gacactatct 20

<210> 56
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 56
gaaatgcaag ctgttattgg 20

<210> 57
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Oligonucleotide

<400> 57
ttagcatcct tcaggcctaa a 21

<210> 58
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 58
gactctgcct caaaataaat aaaa 24

<210> 59
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 59
gccgtagttg ttgtattcca a 21

<210> 60
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 60
gtgcaaaaca gtgggcgatg ct 22

<210> 61
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 61
tgattgccga gccagagca 19

<210> 62
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 62
tttccataat agatatttat gtag 24

<210> 63
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 63
cactgtactc tccaataaag cacc 24

<210> 64
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Oligonucleotide

<400> 64
caaacaaaca cacacacaaa ac 22

<210> 65
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 65
acgttggatg gggttgtcca gcagaaattt ac 32

<210> 66
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 66
acgttggatg ctttccaggt gctgccag 28

<210> 67
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 67
agacacatga caactgcta 19

<210> 68
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 68
gctgtgtggc agttccgcaa 20

<210> 69
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 69
gttccgcaat atgatcaagt gc 22

<210> 70
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 70
gatgaaactc cttctgctgg ctg 23

<210> 71
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 71
saagatgaaa ctccttctgc tg 22

<210> 72
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 72
ggtgaaataa gacagcaagg 20

<210> 73
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<220>
<221> modified_base
<222> (7)
<223> G, C, A, or T

<400> 73
ggagaancag atggcggcct 20

<210> 74
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 74
cggtcacagt tgcagatgaa g 21

<210> 75
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 75
ggaagtgggg tgacagccta aca 23

<210> 76
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<220>
<221> modified_base
<222> (18)
<223> G, C, A, or T

<400> 76
ggtgacagsc taacagwntt tc 22

<210> 77
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 77
gcaccccagt ggacgaatt 19

<210> 78
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Primer

<400> 78
tcagcctctt ggccttagtg tag 23

<210> 79
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Oligonucleotide

<220>
<221> modified_base
<222> (3)..(21)
<223> A, T, C, or G

<400> 79
aannnnnnnn nnnnnnnnnn ntt 23

<210> 80
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Oligonucleotide

<400> 80
attagctggg catggtggc 19